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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/688,961	10/17/2000	ALAIN BETHUNE	107615	1437

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EXAMINER

LORENZO, JERRY A

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 03/14/2002

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/688,961

Applicant(s)

BETHUNE, ALAIN

Examiner

Jerry A. Lorengo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1. 6) ☐ Other:

DETAILED ACTION

(1)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4-9, 13, 14, 15, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,294,641 to Reed et al.

Regarding applicant claims 1, 14, 15 and 20, Reed et al. disclose a method for the thermal transfer (hot marking) decorating of various articles comprising the steps of:

(1) providing a transfer sheet comprising, in order, as per applicant claims 14 and 15, a support sheet (backing layer) a layer of transfer layer (varnish layer) that cures under the effect of radiation, and a design (decoration) layer (column 7, lines 22-40);

(2) bringing the transfer sheet into contact with an article to be decorated (column 9, lines 3-30);

(3) applying localized pressure and heat to the carrier sheet to transfer a localized portion of the resin and design layer to the article (column 9, lines 31-42);

(4) removing the carrier sheet (column 14, lines 45-47); and

(5) causing the resin layer that has been transferred to the article to harden (cure) by exposing it to radiation to thereby produce, as per applicant claim 20, an article having a decoration applied thereto (column 14, lines 48-55).

As per applicant claims 2 and 4, Reed et al. disclose that the transfer layer comprises a UV or thermally curable hydroxylated urethane acrylate such as acrylated polyurethane (column 6, lines 5-12; column 14, line 20).

As per applicant claim 5, Reed et al. disclose that the transfer layer includes acrylated polyurethane, a low molecular-weight prepolymer oligomer (column 14, line 21).

As per applicant claim 6, Reed et al. disclose that the transfer layer is compounded with a solvent, butoxyethanol, before application to the support layer (column 14, line 25).

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As per applicant claim 7, Reed et al. disclose that the transfer layer may include pigments (column 14, lines 40-44).

As per applicant claim 8, Reed et al. disclose that the transfer layer includes photo-initiators at a concentration of 2.47 wt% (column 14, lines 22-24).

As per applicant claim 9, Reed et al. disclose that the support sheet may comprise a polyester film (column 8, lines 62).

As per applicant claims 13 and 19, Reed et al. disclose that the design layer is a layer of ink deposited by printing onto the transfer layer prior to the exposure of the transfer layer to UV curing (column 7, lines 28-51).

(2)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,294,641 to Reed et al.

Although Reed et al., as set forth in section (1), above, discloses that the transfer layer is UV cured after the support sheet is removed, he does not specifically disclose, as per applicant claim 11, that the transfer layer is exposed to UV radiation while its temperature is still close to

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the maximum temperature thereof during transfer and wherein the temperature difference is less than 30% of the maximum temperature.

It would have been obvious to one of ordinary skill in the art at the time of invention to initiate UV curing as soon as possible after the heat transfer step of Reed et al. motivated by the fact the skilled artisan, given the disclosure by Reed et al. that cross-linking is initiated by the heat utilized in the transfer step, would have appreciated that immediate UV exposure would be required in order to maintain curing inertia (column 6, lines 5-12). Furthermore, the claimed temperature differential represented by the transfer layer during transfer and at the point of UV exposure would have been the result of routine experimentation by one of ordinary skill in the art taking into consideration the specific materials used, type of photo-initiators used, and the method of heating used during transfer.

Although they disclose that the transfer layer includes photo-initiators at a concentration of 2.47 wt%, they do not specifically disclose, as per applicant claim 21, that the photo-initiators are present at a concentration by weight of about 0.5%.

It would have been obvious to one of ordinary skill in the art at the time of invention to utilize any effective amount of photo-initiator in compounding the transfer layer of Reed et al. motivated by the fact that the claimed amount of photo-initiator would have been the result of routine experimentation by one of ordinary skill in the art taking into consideration the polymers utilized and the method and means of UV exposure, etc.

(3)

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,294,641 to Reed et al. in view of U.S. Patent No. 5,581,978 to Hekal et al..

Although Reed et al. disclose that the transfer layer comprises a UV or thermally curable hydroxylated urethane acrylate such as acrylated polyurethane, they do not specifically disclose, as per applicant claim 3, that the UV or thermally curable resin is based on a cationic system.

Hekal et al., also drawn to UV curable coatings, disclose that materials which work well for UV curable overcoatings include acrylated urethane, two part epoxy and urethane systems, and cationic systems (column 5, lines 13-19).

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute a UV curable cationic resin for the acrylated polyurethane disclosed by Reed et al.

motivated by the fact such compositions are interchangeable function expedients as suggested by Hekal et al.

(4)

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,294,641 to Reed et al. in view of U.S. Patent No. 4,133,723 to Howard.

Although Reed et al. disclose that the transfer layer comprises a low molecular weight oligomer such as UV or thermally curable acrylated polyurethane, they do not specifically disclose, as per applicant claim 22, that the molecular weights lie in a range from 800 to about 2000.

It would have been obvious to one of ordinary skill in the art at the time of invention to utilize a low molecular weight oligomer such acrylated polyurethane having a molecular weight within the claimed range motivated by the fact that Howard, also drawn to radiation curable coatings, discloses that acrylated urethane oligomers having molecular weights ranging from 410 to 1000 (Table I) are useful in forming radiation curable coatings (abstract).

(5)

Claims 10, 12, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,294,641 to Reed et al. in view of U.S. Patent No. 6,059,914 to Suss and U.S. Patent No. 4,215,170 to Vilaprinio Oliva.

Although Reed et al. disclose, as per applicant claim 17, the use of a UV or thermal curing resin (acrylated urethane), they do not specifically disclose, as per applicant claims 10 and 16, that the design layer is covered with a layer of hot-melt adhesive or that, as per applicant claims 12 and 18, that the design layer comprises a layer of vacuum deposited metal.

It would have been obvious to one of ordinary skill in the art at the time of invention to utilize a metal layer in place of the printed ink design layer of Reed et al. as well as provide a layer of hot-melt adhesive thereover motivated by the fact that Suss, also drawn to thermal image transfer methods using multiplayer thermal transfer films, discloses that it is known to substitute metal layers for pigmented color layers (column 5, lines 35-60) and also utilize a layer of hot-melt adhesive thereover where the design layer does not have suitable adhesive properties (column 5, lines 61-67; column 6, lines 1-2).

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Finally, although Suss does not specifically disclose the manner in which the metal design layer is formed, it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the vacuum metallization method motivated by the fact that Vilaprinio Oliva, drawn to metallization processes, discloses that vacuum metallization is a known process for forming metallized layer on multiplayer transfer structures a (column 3, lines 14-18).

(6)

Note to Applicant

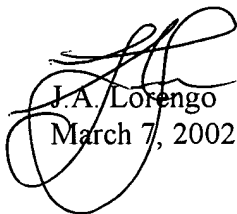
Although the references cited in the FR 99/1328 document have been considered by the examiner, they were not utilized in formulating the grounds of rejection set forth in sections (1) to (5), above.

(7)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry A. Lorengo whose telephone number is (703) 306-9172. The examiner can normally be reached on Monday through Friday, 8:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7115 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


J.A. Lorengo
March 7, 2002